--17. A composition for the treatment or prevention of dysfunctions and disease conditions arising from oxidative damage comprising an effective oxidative damage-treating amount of a spin trapping compound in a pharmaceutically acceptable carrier for topical administration to a patient in need thereof.

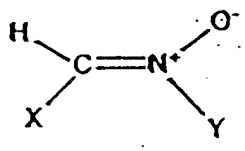
18. The composition of claim 17 wherein the spin trapping compound is selected from the group consisting of phenyl N-tert-butyl nitrone, spin trapping derivatives of phenyl N-tert-butyl nitrone, 5,5-dimethyl pyrroline N-oxide (DMPO), spin trapping derivatives of DMPO, α-(4-pyridyl 1-oxide)-N-tert-butyl nitrone (POBN), spin trapping derivatives of POBN, 2,2,6,6-tetramethyl piperidinooxy (TEMPO), and spin trapping derivatives of TEMPO.

19. The composition of claim 17 wherein the spin trapping compound is a nitrone.

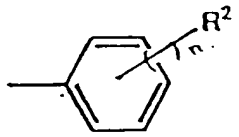
20. The composition of claim 17 wherein the spin trapping compound is selected from the group consisting of phenyl N-tert-butyl nitrone, and derivatives thereof.

21. The composition of claim 17 wherein the spin trapping compound is phenyl N-tert-butyl nitrone.

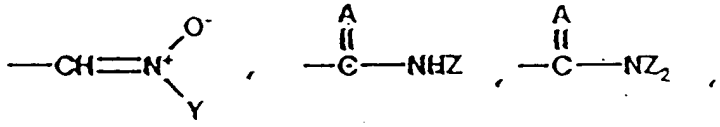
22. The composition of claim 17 wherein said spin trapping compound is defined by the formula:

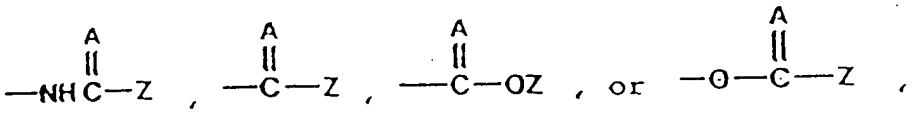


wherein:

X is phenyl, imidazolyl, phenothiazinyl or  ;

R^2 = independently halogen, alkyl, oxyalkyl, alkenyl, oxyalkenyl, OH, NH_2, NHZ, NZ_2, NO,



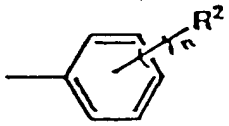


$-SO_3H$, $-OSO_3H$, SH, -S(alkyl), -S(alkenyl), and haloalkyl;

A = O or S;

Z is a C_1 to C_6 straight, branched, alkyl or cyclic group; and

Y is a tert-butyl group that can be hydroxylated or acetylated at one or more positions; phenyl or



where n is 1-5 and R^2 is as defined above.

23. The composition of claim 22 wherein X is phenyl and Y is a tert-butyl group that can be hydroxylated or acetylated at one or more positions.

24. The composition of claim 17 wherein said spin trapping compound is selected from the group consisting of hydroxy PBNs, PBN esters, alkoxy PBNs and acetamide PBNs.

25. The composition of claim 17 wherein said spin trapping compound is selected from the group consisting of 5,5-dimethyl pyrroline N-oxide (DMPO) and spin trapping derivatives thereof.

26. The composition of claim 17 wherein the spin trapping compound is selected from the group consisting of α-(4-pyridyl 1-oxide)-N-tert-butyl nitrone (POBN) and spin trapping derivatives thereof.

27. The composition of any one of claims 17, 18, 19, 20, 21, 22, 23, 24, 25 or 26 wherein the carrier for topical administration is an ointment or cream base.

28. A method for the prophylaxis or treatment of a patient suffering from a dysfunction or disease condition arising from oxidative damage comprising topically administering to the patient in need thereof an effective oxidative damage-treating amount of a spin trapping compound in a pharmaceutically acceptable carrier for topical administration.

29. The method of claim 28 wherein the effective oxidative damage treating amount is from about 0.1 to about 100 mg/kg/day.

30. The method of claim 28 wherein the dysfunction or disease is a peripheral organ disease.

31. The method of claim 30 wherein the peripheral organ is skin.

32. The method of claim 28 wherein the oxidative damage is the result of exposure to X-ray, ultraviolet, gamma or beta radiation.

33. The method of claim 32 wherein the radiation is ultraviolet radiation.

34. The method of claim 28 wherein the oxidative damage is the result of exposure to a cytotoxic compound.

35. The method of any one of claims 28, 29, 30, 31, 32, 33 or 34 wherein the carrier for topical administration is an ointment or cream base.

36. A method for the treatment of a patient suffering from a dysfunction or disease condition arising from oxidative damage to the skin of the patient due to ultraviolet radiation comprising topically administering to the skin of the patient in need thereof an effective oxidative damage-treating amount of a spin trapping compound in a pharmaceutically acceptable carrier for topical administration comprising an ointment or cream base.

37. A method for treatment of a dysfunction or disease condition of the skin resulting from exposure of the skin to ultraviolet radiation comprising applying to the skin of a patient suffering from said dysfunction or disease of the skin an effective oxidative damage-treating dosage of a topical composition comprising a spin trapping compound in a pharmaceutically acceptable topical carrier to effect the treatment of the dysfunction or disease of the skin resulting

from exposure of the skin to ultraviolet radiation, wherein the dosage of spin trapping compound is from about 0.1 to 100 mg/kg/day.

38. The method of claim 37 wherein said carrier is an ointment or cream base.

39. A method for the prophylactic treatment of the skin of a patient from a dysfunction or disease condition arising from oxidative damage to the skin due to ultraviolet radiation comprising topically administering to the skin of the patient an effective oxidative damage-treating amount of a spin trapping compound in a pharmaceutically acceptable carrier for topical administration comprising an ointment or cream base.

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40. A method for the prophylactic treatment of the skin of a patient from a dysfunction or disease condition arising from oxidative damage to the skin due to ultraviolet radiation comprising topically administering to the skin of the patient an effective oxidative damage-treating dosage of a spin trapping compound in a pharmaceutically acceptable carrier for topical administration, wherein the dosage of spin trapping compound is from about 0.1 to 100 mg/kg/day.

41. The method of claim 40 wherein said carrier is an ointment or cream base.

42. The method of any one of claims 28, 36, 37, 38, 39, 40 or 41 wherein said spin trapping compound is selected from the group consisting of 2,2,6,6-tetramethyl piperidine 1-oxide

radical and N-tertbutyl-α-phenylnitrone radical.

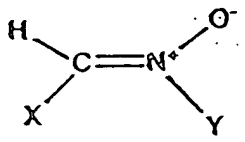
43. The method of any one of claims 28, 36, 37, 38, 39, 40 or 41 wherein the spin trapping compound is selected from phenyl N-tert-butyl nitrone (PBN), spin trapping derivatives of phenyl N-tert-butyl nitrone, 5,5-dimethyl pyrroline N-oxide (DMPO), spin trapping derivatives of DMPO, α-(4-pyridyl 1-oxide)-N-tert-butyl nitrone (POBN), spin trapping derivatives of POBN, 2,2,6,6-tetramethyl piperidinooxy (TEMPO), and spin trapping derivatives of TEMPO.

44. The method of any one of claims 28, 36, 36, 38, 39, 40 or 41 wherein the spin trapping compound is a nitrone.

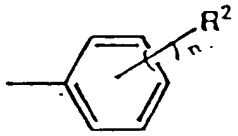
45. The method of claim 44 wherein the spin trapping compound is selected from the group consisting of phenyl N-tert-butyl nitrone, and derivatives of phenyl butyl nitrone.

46. The method of claim 45 wherein the spin trapping compound is phenyl N-tert-butyl nitrone.

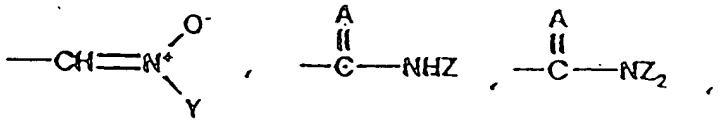
47. The method of any one of claims 28, 36, 37, 38, 39, 40 or 41 wherein said spin trapping compound is defined by the formula:

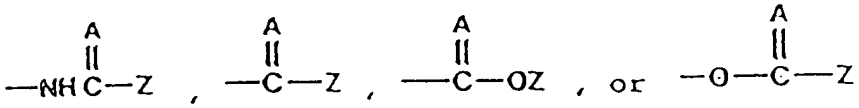


wherein:

X is phenyl, imidazolyl, phenothiazinyl or  ;

R^2 = independently halogen, alkyl, oxyalkyl, alkenyl, oxyalkenyl, OH, NH_2, NHZ, NZ_2, NO,



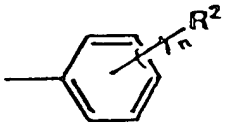


$-SO_3H$, $-OSO_3H$, SH, -S(alkyl), -S(alkenyl), and haloalkyl;

A = o or S;

Z is a C_1 to C_6 straight, branched, alkyl or cyclic group; and

Y is a tert-butyl group that can be hydroxylated or acetylated at one or more positions; phenyl or



wherein n is 1-5 and R^2 is as defined above.

48. The method of claim 47 wherein X is phenyl and Y is a tert-butyl group that can be hydroxylated or acetylated at one or more positions.

49. The method of any one of claims 28, 36, 37, 38, 39, 40 or 41 wherein said spin trapping compound is selected from the group consisting of hydroxy PBNs, PBN esters, alkoxy PBNs, acetamide PBNs and diphenyl PBNs.